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IS 10123 (1982): Data sheet for shell and tube type heat exchangers [MED 17: Chemical Engineering Plants and Related Equipment]

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Indian Standard (Reaffirmed 1999)

DATA SHEET FOR SHELL AND TUBE TYPE HEAT EXCHANGERS

Chemical Engineering Sectional Committee, EDC 57; Heat Generation and Heat Transfer Equipment Subcommittee, EDC 57 : 3 [Ref : Doc : EDC 57 (3553)]

1. **Scope** — Covers the technical data required for thermal rating and mechanical design of shell and tube type heat exchangers.

2. Data Sheet

DATA SHEET FOR HEAT EXCHANGERS

1. Enquiry/Job No. .... Item No. ....
2. Customer Ref No. .... Customer..
3. Project/Plant..
4. Size.......................Type..........................Horizontal/Vertical........................
5. Connected in parallel/in series..
6. Surface per unit..m²
7. Surface per shell...m²
8. Shells per unit..No. of Units..

Performance of One Unit

Shell side Tube side

9. Fluid circulated..
10. Total fluid entering kg/h
11. Vapour kg/h
12. Liquid kg/h
13. Steam kg/h
14. Water kg/h
15. Non condensables kg/h
16. Fluid vapourized or condensed kg/h
17. Steam condensed kg/h
18. Density liquid/vapour kg/m³ .... In...........Out...........In...........Out...........
19. Viscosity liquid/vapour cP In...........Out...........In...........Out...........
20. Mol weight vapourization/non-condensation
21. Enthalpy/Latent heat J/kg
22. Sp heat liquid/vapour J/kg.K
23. Thermal conductivity liquid/vapour W/m.K

Adopted 23 February 1982 © September 1982, ISI Gr 2

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24. Operating temperature °C

25. Operating pressure MPa

26. No. of passes per shell ....

Shell side Tube side

27. Velocity m/s

28. Pressure drop { Calculated / Admissible } kPa

29. Fouling resistance m^2 K/W

30. Heat exchanged J/h

31. Heat transfer coefficient W/m^2.K

32. Mean temperature difference corrected °C

33. Overall heat transfer coefficient W/m^2.K

Construction of One Shell

34. Code of construction

Shell side Tube side

35. Design pressure MPa

36. a) Test pressure (hydraulic) MPa △

b) Test pressure (pneumatic) MPa □

37. Design temperature °C ◇

38. No. of tubes...........OD..............mm..............Length...........mm......... Pitch...........mm Thickness..............mm.........

39. Shell.................OD...........mm ID ....mm Long baffle.................Yes/No

40. Baffles.............. Pitch.........mm % cut.............. Dia...............Area........................

41. Corrosion allowance ....

42. Post weld heat treatment ....

43. Joint efficiency ....

44. Radiography ....

45. Painting ....

46. Insulation..Hot/Cold

47. Tube to tube sheet joint..

48. *Shell Nozzle Size*: Inlet.......................mm Outlet.......................mm

Flange type and rating —— ——

49. *Channel Nozzle Size*: Inlet.......................mm Outlet.......................mm

Flange type and rating —— ——

50. Inlet and outlet connection sizes ....

51. Test ring .... Yes/No

52. Test flange .... Yes/No

Material of Construction

53. Shell ....

54. Expansion below ....

55. Shell cover ....

56. Channel ....

57. Channel cover ....

58. Floating head ....

59. Floating head cover ....

60. Baffles/Tube supports

61. Tube sheet ....

62. Tubes ....

63. Spacers ....

64. Impingement baffle ....

65. Support saddle/Pad ....

Shell side   Tube side

66. Girth flanges ....

67. Nozzle pipes ....

68. Nozzle flanges ....

69. Bolts/Nuts ....

70. Gaskets ....

Note 1 — The purchaser should clearly furnish the information including any special requirement.

Note 2 — Temperature vs Enthalpy diagram with bubble/dew point should be provided in case of condensation/vapourization.

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